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09/428,122	10/27/1999	ANDREW B. MURDIN	19721-007-(P	4261

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EXAMINER

DEVI, SARVAMANGALA J N

ART UNIT

PAPER NUMBER

1645

DATE MAILED: 02/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/428,122

Applicant(s)  
Murdin et al.

Examiner  
S. Devi, Ph.D.

Art Unit  
1645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☒ Responsive to communication(s) filed on Dec 4, 2001

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) 1-16 and 18-39 ~~is/are~~ pending in the application.

4a) Of the above, claim(s) 5-9, 15, 20-24, and 27-37 ~~is/are~~ withdrawn from consideration.

5) ☒ Claim(s) 17 ~~is/are~~ canceled.

6) ☒ Claim(s) 1-4, 10-14, 16, 18, 19, 25, 26, 38, and 39 ~~is/are~~ rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some\* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_

20) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### **Applicants' Amendment**

- 1) Acknowledgment is made of Applicants' amendment filed 12/04/01 (paper no. 14) in response to the Office Action mailed 12/13/00 (paper no. 7).

#### **Status of Claims**

- 2) Claim 17 has been canceled via the amendment filed 12/04/01.  
Claims 3, 4, 13, 19, 25, 38 and 39 have been amended via the amendment filed 12/04/01.  
New claims 38 and 39 have been added via the amendment filed 12/04/01.  
Claims 1-39 are pending.  
Claims 1-4, 10-14, 16, 18, 19, 25, 26, 38 and 39 are under examination.

#### **Prior Citation of Title 35 Sections**

- 3) The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office Action.

#### **Prior Citation of References**

- 4) The references cited or used as prior art in support of one or more rejections in the instant Office Action and not included on an attached form PTO-892 or form PTO-1449 have been previously cited and made of record.

#### **Co-pending Applications**

- 5) More than 20 co-pending applications exist in the Office that may have double patenting issues with the claims of the instant specification. It was not possible to obtain all these applications at the time the previous Office Action was written. For the purpose of expediting the prosecution of the instant application to the advantage of Applicants, the Office requested Applicants' co-operation in providing the Office with a copy of the claims from the co-pending applications so that the claims could be examined for double patenting issues. In response to this request, Applicants state that such a supply of copies of claims would be unduly onerous and expensive for Applicants and that they have no obligation to provide the Examiner with copies of claims in any pending applications. Applicants contend that it is the Examiner's burden to "identify" any potential statutory and/or obviousness type double patenting rejections.

Application SN 09/428,122  
Art Unit: 1645

In response, the paragraph 3 of the Office Action mailed 12/13/01 (paper no. 7) did **not** state that Applicants had an “obligation” to provide the Office with a copy of claims from more than twenty co-pending applications. It should also be noted that via paragraph 3 of the Office Action mailed 12/13/01 (paper no. 7), Applicants were **not** asked to “identify” potential double patenting rejection issues. Except for SN 09/361,040 and 09/471,194, the rest of the co-pending applications identified in paragraph 3 of the Office Action mailed 12/13/01 (paper no. 7) are not available to the Examiner of record for review. It is noted that Applicants make the following statement on page 5 of their amendment filed 12/04/01:

However, Applicants agree to provide the Examiner copies of the requested claims upon determination of allowable subject matter in the present application.

Due to the Applicants’ refusal to comply with the Office’s request and in light of the above-cited statement, the Examiner in charge of the instant application would make a determination as to potential double patenting rejections at a future time when allowable subject matter is identified in the instant application.

#### **Objection(s) Maintained**

6) The objection to the drawings made in paragraph 7 of the Office Action mailed 12/13/00 (paper no. 7) under 37 C.F.R 1.84 is maintained for reasons set forth therein. Applicants are asked to note the changes effected 03 May 2001, particularly the changes to the ‘Timing of Corrections’:

#### **INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

##### *A. Correction of Informalities -- 37 CFR 1.85; 1097 O.G. 36*

New formal drawings must be filed with the changes incorporated therein. The art unit number, application number (including series code) and number of drawing sheets should be written on the reverse side of the drawings. Applicant may delay filing of the new drawings until receipt of the “Notice of Allowability” (PTOL-37 or PTO-37). If delayed, the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the “Notice of Allowability” to avoid extension of time fees. Extensions of time may be obtained under the provisions of 37 C.F.R 1.136(a) for filing the corrected

drawings (but not for payment of the issue fee). The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

*B. Corrections other than Informalities Noted by Draftsperson on form PTO-948.*  
All changes to the drawings, other than informalities noted by the Draftsperson, MUST be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings MUST be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

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*Timing of Corrections*

Applicant is required to submit acceptable corrected drawings within the three month shortened statutory period set in the "Notice of Allowability" (PTO-37). Within that three month period, two weeks should be allowed for review of the new drawings by the Office. If a correction is determined to be unacceptable by the Office, Applicant must arrange to have an acceptable correction re-submitted within the original three month period to avoid the necessity of obtaining an extension of time with extension fees.

Therefore, applicant should file corrected drawings as soon as possible.

Failure to take corrective action within the set (or extended) period will result in ABANDONMENT of the application.

- 7) The objection to the specification made in paragraph 9(c) of the Office Action mailed 12/13/0 (paper no. 7) is maintained for set forth therein.

**Objection(s) Withdrawn**

- 8) The objection to the oath/declaration made in paragraph 8 of the Office Action mailed 12/13/00 (paper no. 7) is withdrawn in light of Applicants' submission of an executed oath/declaration.

- 9) The objection to the specification made in paragraph 9(a) of the Office Action mailed 12/13/00 (paper no. 7) is withdrawn in light of Applicants' amendment to the specification.

- 10) The objection to the specification made in paragraph 9(b) of the Office Action mailed 12/13/00 (paper no. 7) is withdrawn in light of Applicants' amendment to the specification.

Application SN 09/428,122  
Art Unit: 1645

11) The objection to claim 19 made in paragraph 15(a) of the Office Action mailed 12/13/00 (paper no. 7) is withdrawn in light of Applicants' amendment to the claim.

12) The objection to claim 25 made in paragraph 15(b) of the Office Action mailed 12/13/00 (paper no. 7) is withdrawn in light of Applicants' amendment to the claim.

**Rejection(s) Moot**

13) The provisional rejection of claim 17 made in paragraph 10 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C. 101 is moot in light of Applicants' cancellation of the claim.

14) The rejection of claim 17 made in paragraph 11 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 112, first paragraph, as being non-enabled, is moot in light of Applicants' cancellation of the claim.

15) The rejection of claim 17 made in paragraph 12(c) of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claim.

**Rejection(s) Withdrawn**

16) The rejection of claims 1-4, 10-14, 16, 18, 19, 25 and 26 made in paragraph 11 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 112, first paragraph, as being non-enabled, is withdrawn.

17) The rejection of claims 3, 4, 13 and 19 made in paragraph 12 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendments to the claims.

**Rejection(s) Maintained**

18) The provisional rejection of claims 1-4, 10-14, 16, 18, 19, 25 and 26 made in paragraph 10 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 20, 21, 25-28, 32-35, 41 and 42 of co-pending application No. 09/376,770, is maintained for reasons set forth therein and herebelow.

Applicants contend that the instant application and the co-pending application, SN 09/376,770, are directed to distinct sequences which encode different Chlamydial polypeptides.

Application SN 09/428,122  
Art Unit: 1645

Applicants state that they have attached an alignment comparison between the polypeptide claimed in these two applications, as Exhibits A and B, to show the distinctness between the polypeptides.

Applicants' arguments have been carefully considered, but are non-persuasive. The amendment filed 12/04/01 does not contain any Exhibits or Attachments. The claims under examination in the instant application are directed to a polynucleotide and not to a polypeptide. The sequence search report (attached) produced in the Office following a sequence alignment clearly indicates that the polynucleotide of application SN 09/376,770 show sufficiently lengthy or continuous stretches of sequence identity with the instantly claimed nucleotide sequence of SEQ ID NO: 1, and therefore would have the inherent capacity of "hybridizing" under the broadly recited "stringent conditions" to the polynucleotide as claimed, for example, in claim 1, part (d). The rejection stands.

19) The rejection of claims 1 and 25 made in paragraph 13 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 102(b) as being anticipated by Longbottom (GenEmbl Database Accession number U72499, 25 September 1996) (Longbottom, 1996), is maintained for reasons set forth therein and herebelow.

20) The rejection of claims 1, 4, 10-13, 16, 18, 19, 25 and 26 made in paragraph 14 of the Office Action mailed 12/13/00 (paper no. 7) under 35 U.S.C § 102(b) as being anticipated by Longbottom *et al.* (*Infect. Immun.* 66: 1317-1324, April 1998) (Longbottom *et al.*, 1998), is maintained for reasons set forth therein and herebelow.

Applicants contend that although "both applications" are directed to *Chlamydia* polypeptides, Longbottom discloses distinct sequences encoding different *Chlamydia* polypeptides. Applicants state that they have attached, as Exhibits C1 and C4, an alignment comparison between the polypeptides of the instant application with those disclosed by Longbottom. Applicants allege that the rejections seem to be based upon the "identical fragments" within the polynucleotides and/or polypeptides of the instant invention, but not on the entire polynucleotide or polypeptide.

Applicants' arguments have been carefully considered, but are non-persuasive. The amendment filed 12/04/01 does not contain any Exhibits or Attachments. The claims, as drafted

currently, do not recite that the polynucleotide claimed, for example, in claim 1, part (d) is a full length polynucleotide. In fact, claims encompass "fragments" of the nucleotide sequence of SEQ ID NO: 1. The claims are not limited to any specific stringent conditions either. It is noted that the features upon which Applicants rely is not recited in the rejected claims. The sequence search reports that were provided to the Applicants as an attachment to the Office Action mailed 12/13/00 (paper no. 7) clearly illustrate that the prior art polynucleotides contain sufficiently lengthy or continuous stretches of sequence identity with the instantly claimed nucleotide sequence of SEQ ID NO: 1. Therefore, the prior art polynucleotide would have the inherent capacity of "hybridizing" under the broadly recited "stringent conditions" to the polynucleotide of SEQ ID NO: 1 and would also serve as a 'functional fragment'. The rejections stand.

**Rejection(s) under 35 § U.S.C. 112, First Paragraph**

**21)** Claim 39 is rejected under 35 § U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The new claim 39 includes the limitation: "said mammalian cell is a human cell". However, there appears to be no descriptive support in the instant specification for this limitation. Applicants point to lines 9-14 on page 14, line 31 of page 15 and the original claim 17 as providing descriptive support for this new claim. However, these parts of the specification do not describe any 'human mammalian cell' comprising an expression cassette comprising the claimed polypeptide operably linked to a promoter. The original claim 17 included the recitation: "vaccine vector of claim 16, wherein said host mammal is human", which is not supportive of a human host cell comprising an expression cassette. Therefore, the limitation in the instant claim is considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants are respectfully requested to remove the new matter from the claim, or point to the specific parts of the disclosure that provide descriptive support to the above-identified limitation.

**22)** Claims 1-4, 10-14, 16, 18, 19, 25, 26, 38 and 39 are rejected under 35 U.S.C § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Many of the factors regarding undue experimentation have been summarized in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Circ. 1988) as follows:

- The quantity of experimentation necessary (time and expense);
- The amount of direction or guidance presented;
- The presence or absence of working examples of the invention;
- The nature of the invention;
- The state of the art;
- The relative skill of those in the art;
- The predictability or unpredictability of the art; and
- The breadth of the claims.

The instant claims are directed to a polynucleotide encoding a polypeptide having a sequence that is "at least 75% homologous to SEQ ID NO: 2" and functional fragments thereof. However, the specification fails to teach the precise structural composition of the claimed polynucleotide encoding a polypeptide having at least 75% identity to the polypeptide of SEQ ID NO: 2 or its functional fragments. There is a lack of disclosure as to 75% to 99% homologous amino acid residues from which region of SEQ ID NO: 2 are encompassed in the claimed polypeptide sequence such that the variant produced would retain the functional property and how to produce functional fragments of such a polypeptide. It is uncertain whether retaining 75%, 80%, 85%, 90% or 95% continuous or discontinuous homology to any part of SEQ ID NO: 2 (i.e., terminal or central parts) would yield a polypeptide with at least one of the functions retained. It is unlikely that a polypeptide having 75% to 99% continuous or discontinuous identity to any part of SEQ ID NO: 2, or its "functional fragments" would retain or have the desired functional specificity of the native polypeptide of SEQ ID NO: 2 and would serve as a vaccine, pharmaceutical composition or a diagnostic reagent.

Thus, the specification fails to teach the structure of the claimed polypeptide or its fragments that is commensurate with its desired functions. Without a disclosure of the specific amino acid residues contained within the claimed polypeptide or its 'functional fragments', one of ordinary skill in the art cannot be sure of the sequences embraced by the claims and would not be able to make and use the polypeptide sequence(s) as recited in the instant claims, without undue experimentation. It is not predictable that if the polypeptide of SEQ ID NO: 2 is modified to have at least 75% homology, it would still function the way it is desired to. This is critical in view of the following. It is clear that, although the polypeptide encoded by the claimed polynucleotide is said to have 75% to 99% identity with SEQ ID NO: 2, there is a 1-25% dissimilarity between SEQ ID NO: 2 and the polypeptide variant encoded by the claimed polynucleotide, and the effects of these dissimilarities upon protein structure and function cannot be predicted. Bowie *et al* (*Science*, 1990, 247: 1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function and carry out the instructions of the genome. Bowie *et al* further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex (see column 1 on page 1306). Bowie *et al* also teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (see column 2 on page 1306). The sensitivity of proteins to alterations of even a single amino acid in a sequence are exemplified by Burgess *et al* (*J. Cell Biol.* 111: 2129-2138, 1990) who teach that replacement of a single lysine residue at position 118 of acidic fibroblast growth factor by glutamic acid led to the substantial loss of heparin binding, receptor binding and biological activity of the protein. Similar teachings are provided by Lazar *et al.* (*Mol. Cellular Biol.* 1988, 8: 1247-1252) who teach that in transforming growth factor alpha, replacement of aspartic acid at position 47 with

alanine or asparagine did not affect biological activity while replacement with serine or glutamic acid sharply reduced the biological activity of the mitogen. The references cited above these references demonstrate that even a single amino acid substitution will often dramatically affect the biological activity and characteristics of a protein or polypeptide. Clearly, with 1-25% dissimilarity to the polypeptide of SEQ ID NO: 2, the functions of the polypeptide variant or its fragments encoded by the claimed polynucleotide could not be predicted, based on the sequence similarity or identity with SEQ ID NO: 2, nor would it be expected to be the same as that of the polypeptide of SEQ ID NO: 2. Thus, the making and using of the instantly claimed polypeptide variant having the desired function(s), or its functional fragments through the use of the instantly claimed polynucleotide is well outside the realm of routine experimentation. Therefore, undue experimentation would have been required by one of ordinary skill in the art at the time of the effective filing date of the instant application to reproducibly practice the invention as claimed due to the lack of specific guidance, the lack of enabling working examples, the demonstrated functional unpredictability as reflected in the state of the art, the quantity of experimentation necessary, and the breadth of claims. The claims are viewed as not meeting the enablement provisions of 35 U.S.C § 112, first paragraph.

#### **Remarks**

- 23) Claims 1-4, 10-14, 16, 18, 19, 25, 38 and 39 stand rejected.
- 24) Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center located in Crystal Mall 1. The transmission of such papers by facsimile must conform with the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The CM1 facsimile center's telephone number is (703) 308-4242, which is able to receive transmissions 24 hours a day and 7 days a week.
- 25) Any inquiry concerning this communication or earlier communications from the Examiner should be directed to S. Devi, Ph.D., whose telephone number is (703) 308-9347. A message may be left on the Examiner's voice mail system. The Examiner can normally be

Application SN 09/428,122  
Art Unit: 1645

reached on Monday to Friday from 7.15 a.m. to 4.15 p.m. except one day each bi-week, which would be disclosed on the Examiner's voice mail system.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lynette Smith, can be reached on (703) 308-3909.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

February 2002

  
S. DEVI, PH.D.  
PRIMARY EXAMINER